**Pulled From The Past Systems**

1.1.1 Outline the concept and characteristics of systems  
  
1.1.2 Apply the systems concept on a range of scales  
  
1.1.3 Define the terms open systems, closed systems and isolated systems  
  
1.1.4 Describe how the first and second laws of thermodynamics are relevant to environmental systems  
  
1.1.5 Explain the nature of equilibria  
  
1.1.6 Define and explain the principles of positive feedback and negative feedback  
  
1.1.7 Describe transfer and transformation processes  
  
1.1.8 Distinguish between flows (inputs and outputs) and storages (stock) in relation to systems  
  
1.1.9 Construct and analyze quantitative models involving flows and storages in a system  
  
1.1.10 Evaluate the strength and limitations of models

🡪Define and give examples of closed systems, open systems, isolated systems

🡪Describe closed, open, and isolated systems in terms of matter and energy exchange

🡪Draw systems diagrams of an open, closed, and isolated system

🡪Using the terms open, closed, and/or isolated system describe a population of elephants living on an African grassland.

🡪Define system

🡪Outline the Gaia Hypothesis

🡪Evaluate models (demographic transition, climate change, nitrogen cycling, food webs)

🡪Compare ecosystems to social systems

🡪Compare ecosystems to political systems

🡪Define negative feedback. Give a specific ecological example & give a specific example relating to climate change

🡪Define positive feedback. Give a specific ecological example & give a specific example relating to climate change

🡪Define the First and Second Laws of Thermodynamics

🡪Draw diagrams of positive and negative feedback loops

🡪Give examples of the First and Second Laws of Thermodynamics

🡪Explain how the First and Second Laws of Thermodynamics are relevant in ecosystems

🡪Define static equilibrium. Give two specific examples

🡪Define steady-state equilibrium. Give two specific examples.

🡪Explain how ecological succession is an example of steady-state equilibrium

🡪Explain how exponential growth is an example of positive feedback

🡪Define transfer and transformation. Give examples of each

🡪Define feedback

🡪Define model